

4. IMPORTANCE OF FRUITS IN THE DIET OF CHITAL IN DRY SEASON

During a study on the ecology and behaviour of dholes *Cuon alpinus* Pallas 1811 in Bandipur Tiger Reserve, rumen contents of seven freshly killed chital were collected. Of these, five samples were collected in March, the peak dry month, and two samples after the onset of rains and sprouting of grasses (Table).

Following inferences could be made from the data. 1) During the dry season, because

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of the availability, chital consumed considerable amount of fruit which varied from 13 to 70 per cent of their total rumen content weight.

2) *Emblica officinalis* and *Xeromphis spinosa* were the commonly eaten fruits. 3) After the rains, fruits in the diet of chital decreased and this may be due to their scarcity and the availability of tender grass.

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(For Table, see page 595.)

5. SOLAR ECLIPSE—NOTES ON BEHAVIOUR OF EGRETS

A camouflaged observation post was set up on the foreshore of Tummalagudem village tank which is located 48 km from the line of total eclipse. We scouted the area and located the roost of cattle egrets and little egrets in a grove consisting of *Acacia arabica* and *Tamarindus indicus*. The shallow tank and the neighbouring paddy fields are the favourite feeding grounds of egrets.

Our study of the roosting behaviour of egrets commenced on 14th February, 1980, that is two days in advance of the total solar eclipse day. Small groups of cattle egrets and little egrets flew from their feeding grounds to their roost. Some of them directly landed on the branches while others circled over the trees twice or thrice before landing. Some of the birds flew from one tree top to another before finally settling down. Soon after landing, the egrets started producing low grating croaks and the crescendo increased gradually as more and more arrived to roost. It is a mixed colony of egrets and herons. The bird chorus lasted for nearly 30 minutes before silence and darkness engulfed the scene.

On the next day, before dawn we reached the roost and recorded the first call of cattle egret at 5.49 a.m. With the day breaking at 6.15 a.m. the first egret took off at 6.17 a.m. and flew directly towards the tank. At 6.19 a.m. the egrets flew off in small parties, in the direction of the paddy fields and tank and by 6.35 p.m. the roost was deserted.

The little egrets (*Egretta garzetta*) and cattle egrets (*Bubulcus coromandus*) assembled at the centre of the waterspread area dotted with reeds and vocalised for about 30 minutes. Slowly they spread out towards the tank margin for foraging. A few flew from one area of the tank to another.

It was dusk and the egrets started arriving at the roost either singly or in small parties. Huge flocks arrived at 6.20 p.m. and after circling over the area thrice, they alighted on the tree tops like swarms of locusts and soon after, indulged in low-key vocalisation. By 7 p.m. the vocalisation subsided and gradually silence descended on the scene.

On the momentous eclipse day (16-2-1980) twilight came at 5.56 a.m. We recorded the

TABLE
OCCURRENCE OF FRUITS IN THE RUMEN CONTENTS OF CHITAL

Date of chital kill	Particulars of the chital killed	Total rumen weight	Weight of rumen content	Number and weight of different fruits	% of fruit weight in total rumen content
06/03/77	Fawn	800 gm	500 gm	55— <i>Embllica officinalis</i> —	350 gm
22/03/77	Stag—age class VI— 90 cm velvet antlers	6.110 kg	5.25 kg	138— <i>Embllica officinalis</i> — 20— <i>Xeromphis spinosa</i> — 3— <i>Terminalia bellerica</i> —	400 gm 400 gm 60 gm
24/03/77	Stag—age class V— 90 cm velvet antlers	6.05 kg	4.625 kg	140— <i>Embllica officinalis</i> — 20— <i>Xeromphis spinosa</i> — 5— <i>Terminalia bellerica</i> —	925 gm 400 gm 100 gm
29/03/77	Stag—age class VI— 89 cm hard antlers	5.8 kg	3.25 kg	75— <i>Embllica officinalis</i> —	450 gm
20/03/77	Stag—age class V— 88 cm velvet antlers	6.23 kg	5.5 kg	25— <i>Xeromphis spinosa</i> — 94— <i>Melia dubia</i> — 2— <i>Embllica officinalis</i> —	600 gm 650 gm 15 gm
28/04/77	Stag—age class VI— 78 cm velvet antlers	8 kg	6.5 kg	4— <i>Xeromphis spinosa</i> — 3— <i>Zizyphus xylopyrus</i> — 5— <i>Xeromphis spinosa</i> +5 <i>Terminalia chebula</i> —	50 gm 15 gm 100 gm
09/05/78	Stag—age class V— 76 cm hard antles	8 kg	6.5 kg	1— <i>Xeromphis spinosa</i> +5 <i>Terminalia chebula</i> —	15 gm 0.30 gm
					1.5% 0.46%

first croak of egrets at 5.57 a.m. The egrets continued their occasional vocalisation. At 6.17 a.m. the little egrets and later the cattle egrets started to fly either singly or in groups of 2, 3, 4, 7 etc. A minute later, a mixed flock of egrets and pond herons took off. Little later, a third group took to wings and by 6.33 a.m. the entire mixed colony had left for their favourite feeding grounds.

The egrets had collected in two groups at the southern end of the tank margin. The larger group consisted of little egrets, cattle egrets and a sprinkling of grey herons. The smaller group consisting of 30 egrets had assembled near the reeds. Since 7.12 a.m., they have been vocalising. At 9.36 a.m., the bigger group slowly thinned out spreading evenly towards North and West. At 11.10 a.m., a small party of cattle egrets coming from the fields, alighted on the tamarind trees abutting the tank bund. A little later another party arrived and landed on the same trees. With the increasing heat, the birds moved to the tank margin and rested while some flew off and landed on the tamarind trees.

At 12 noon, the mercury touched 89°F and by 12.30 p.m. it shot upto 90°F. Egrets standing in water were still feeding while those on the grassy tank continued to rest. At 1.00 p.m., the thermometer recorded 90.5°F and the feeding by egrets continued. The temperature rose to 92.5°F at 1.30 p.m. but came down to 90°F at 2 p.m. The eclipse began exactly at 2.30 p.m. when the mercury touched 92.5°F. The sky was clear and there was no perceptible change in bird activity. At 3 p.m., the thermometer recorded 91.5°F. The eastern sky which was a hue of light grey and crimson red became dull at 3.20 p.m. and the thermometer recorded 89.5°F. No change was noticed on bird activity at 3.30 p.m. When the mercury touched 88.5°F. There was dawn twilight effect at 3.40 p.m. When the temperature ab-

ruptly came down to 86.5°F. At 3.45 p.m. the sky became duller and near darkness abruptly enveloped the whole scene at exactly 3.46 p.m. when the mercury touched 84°F. The egrets abruptly took to wing and flew in the direction of the roosting place. Two parties flew directly to the tamarind trees on the tank bund. It was unmistakable that the birds flew restlessly but vocalisation was distinctly absent. The sun came out in all brightness at 3.48 p.m. and we could clearly see the egrets alighting at the roosting place.

Our team member stationed near the roost reported that at 3.47 p.m. flocks of egrets arrived and circled over the area twice or thrice. While they were preparing to land, the sun came out in blinding brilliance causing confusion. One party of egrets landed on babul trees, another on tamarind trees while the third alighted on the nearby paddy fields. While circling, the birds looked restless but there was no vocalisation indicating fright. Two groups which circled over the roost returned to the shallow tank as sudden light bathed the whole landscape.

About 100 yards from our observation post, we noticed three pairs of little egrets fighting and making loud noise which attracted a small party of egrets. The birds were jumping and pecking at each other and the fighting lasted a few minutes. A little later, they returned to the same place and restarted the fight. At 4.28 p.m. we saw a group of egrets take off from the roost and after circling head towards the paddy fields. A few birds remained at the roosting place.

We hastily reached the place of roosting at 5.50 p.m. A flock of egrets arrived at 6.10 p.m. At 6.30 p.m. a huge flock of little egrets and cattle egrets came from the tank feeding ground, circled and landed on the babul trees. Soon after, they started vocalisation in low tone. Another flock arrived three minutes later

followed by a second. The vocalisation increased in intensity. The last group landed at 6.38 p.m. and by 7 p.m. the birds ceased vocalisation and settled down for the night.

Returning to the roost on 17th morning, we continued our observations. At 5.49 a.m. we recorded the first call of egrets. The low tone croaks mixed with occasional quacking of pond herons could be heard till 6.10 a.m. At 6.17 a.m. one egret took off and flew southwards towards the tank followed by another. Three minutes later, the third, fourth and fifth took off. From 6.16 a.m. small groups of egrets started off, one after another and by 6.35 a.m., all the birds had gone leaving the roost totally empty.

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The following are the interesting sidelights of our observations of bird behaviour.

- 1) Little egrets are the most voiciferous and while in company, indulge in occasional pecking and fighting. Cattle egrets are less noisy and quarrelsome.
- 2) Most of the time, little egrets and cattle egrets hunt in company.
- 3) Little egrets and cattle egrets roost in mixed colonies in the same trees.
- 4) Egrets are the earliest risers followed by grey herons.
- 5) Exactly at 6.17 a.m., the egrets started flying singly or in small parties of 2, 3, 4, 7, etc.

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6. ON THE OCCURRENCE OF LONG-DISTANCE MOVEMENT IN THE YELLOW-WATTLED LAPWING, *VANELLUS* (= *LOBIPLUVIA*) *MALABARICUS* (BODDAERT)

Of the Asian species of the genus *Vanellus* (Brisson), most are known to be migratory to a certain extent. The degree to which movement occurs can be very variable between and within species; northern populations may migrate long distances south from their breeding grounds, whereas southern con-specific populations may be entirely sedentary (this occurs, for example, in the Common lapwing, *Vanellus vanellus*). Other species may be described as "resident", showing only local (usually seasonal) movement within a defined breeding area; this is the case with the Red-wattled lapwing, *V. indicus*, and Spurwinged plover, *V. spinosus*, (although the latter has occurred in Western Europe in recent years; Blotzheim *et al.* 1975). *V. malabaricus* has been thought

to be one of the most sedentary species, showing short-distance seasonal migratory or nomadic movement, but tending to remain within the limits of its breeding area.

The breeding range of this species extends throughout the south of the Indian subcontinent and Sri Lanka, north to West Bengal and Bangladesh. Occasional stragglers have been reported from the Nepal Valley although breeding is not thought to occur there (Ali & Ripley 1969). It has not been thought to occur east of the Ganges River, although Oates (1883) notes one specimen collected from Burma "in recent years"; it does not appear to have been reported from that country subsequently and is unlisted by Smythies (1953). While information is by no means complete,